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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte VISWANATHAN SWAMINATHAN and HYOJIN KIM

Appeal 2016-004069
Application 12/956,965[1]
Technology Center 2400

Before JOHNNY A. KUMAR, SCOTT B. HOWARD, and JOHN D. HAMANN, *Administrative Patent Judges*.

HAMANN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants file this appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–23. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

THE CLAIMED INVENTION

Appellants' claimed invention relates to a reduced video stream and paired video stream being compressed for use in stereoscopic displays. Abstract. Claim 17 is illustrative of subject matter of the appeal and is reproduced below.

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[1] According to Appellants, the real party in interest is Adobe Systems Incorporated. Br. 3.

17. A computer-implemented method, comprising:

generating a reduced video stream by removing from one of a pair of video streams selected for preparation for stereoscopic display a set of correlative data that is present in or can be predicted from the other of the pair of video streams selected for preparation for stereoscopic display; and

compressing as separate video streams the reduced video stream and the other of the pair of video streams for use in stereoscopic display of the reduced video stream and the other of the pair of video streams, the other of the pair of video streams being usable for two-dimensional or three-dimensional display and the reduced video stream being usable to complement the other of the pair of video streams in three-dimensional display, the reduced video stream and the other of the pair of video streams having different fee regimes for viewing of the reduced video stream and the other of the pair of video streams.

REJECTIONS[2]

(1) The Examiner rejected claims 1–16 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Appellants do not provide arguments for this rejection, and thus, we summarily affirm this rejection. *See Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

(2) The Examiner rejected claims 12–16 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Appellants do not provide arguments for this rejection, and thus, we summarily affirm this rejection.

[2] Appellants state that only claims 17–20 are being appealed (Br. 5), however, we are unaware of an entered amendment canceling claims 1–16 and 21–23. *See* 37 C.F.R. § 41.31(c) ("An appeal, when taken, is presumed to be taken from the rejection of all claims under rejection unless cancelled by an amendment filed by the applicant and entered by the Office.").

(3) The Examiner rejected claims 1, 3–7, 9–12, 14–16, and 21–23 as being unpatentable over the combination of Damera-Venkata (US 7,463,778 B2; issued Dec. 9, 2008) (hereinafter "D-V") and Lipton et al. (US 5,416,510; issued May 16, 1995) (hereinafter "Lipton"). Appellants do not provide arguments for this rejection, and thus, we summarily affirm this rejection.

(4) The Examiner rejected claims 2, 8, and 13 as being unpatentable over the combination D-V, Lipton, and Socek et al. (US 2007/0291941 A1; published Dec. 20, 2007) (hereinafter "Socek"). Appellants do not provide arguments for this rejection, and thus, we summarily affirm this rejection.

(5) The Examiner rejected claims 17–20 as being unpatentable over the combination D-V, Lipton, and Weaver et al. (US 2007/0133603 A1; published June 14, 2007) (hereinafter "Weaver").

ANALYSIS

We have reviewed the Examiner's rejection of claims 17–20 in light of Appellants' contentions that the Examiner erred. In reaching our decision, we consider all evidence presented and all arguments made by Appellants.

We disagree with Appellants' arguments, and we incorporate herein and adopt as our own for the reviewed rejection the findings, conclusions, and reasons set forth by the Examiner in (1) the February 5, 2015 Final Office Action ("Final Act." 2–22) and (2) the November 19, 2015 Examiner's Answer (Ans. 2–14). We highlight and address, however, specific findings and arguments below for emphasis.

(1) Generating a reduced video stream

Appellants argue the combination of D-V, Lipton, and Weaver fails to teach or suggest "generating a reduced video stream by removing from one of a pair of video streams selected for preparation for stereoscopic display a set of correlative data that is present in or can be predicted from the other of the pair of video streams selected for preparation for stereoscopic display," as recited in claim 17. Br. 10–12.

Appellants argue D-V instead teaches estimating motion between multiple view **images** and using the estimations to compress the **images** by reducing redundancy between the pairs of images — multiple view images are not equivalent to a pair of video **streams**. Br. 11 (citing D-V col. 4, ll. 1–9). According to Appellants, "multiple view images, at best, represent a single video stream." *Id.*

Appellants further argue D-V "is entirely silent with regard to stereoscopic display." *Id.* Appellants also assert Lipton and Weaver fail to cure D-V's deficiencies. Br. 12 (citing Lipton col. 11, ll. 17–24 (arguing although Lipton discusses a stereoscopic application, it "is silent with regard to generating a reduced video stream or removing correlative data from one of a pair of video streams")).

The Examiner finds, and we agree, the combination of D-V, Lipton, and Weaver teaches, or at least suggests, the disputed limitation. *See* Ans. 8–9; Final Act. 19–21. The Examiner finds, and we agree, D-V teaches or suggests the disputed limitation by teaching "epipolar geometry, which is the geometry of stereo vision, in which when two cameras view a 30 scene from two distinct positions, there are a number of geometric relations between the 30 points and their projections onto the 20 images that lead to constraints

between the image points," which can be applied to video streams. Ans. 8 (citing D-V col. 5, ll. 28–50); *see also* Final Act. 19–20 (citing D-V col. 4, ll. 1–9 (finding D-V teaches "encoder 32 includes a motion estimation engine 40, which estimates motion between pairs of multiple view images. Encoder 32 uses the motion estimates to compress the multiple view images 30 by reducing redundancy between the pairs of multiple view images 30")). We note that in further support of the Examiner's findings that D-V teaches its "multiple view images 30 may be video or still images," and thus, teaches, or at least suggests, a plurality of video streams, contrary to Appellants' arguments. *See* D-V col. 3, l. 65.

As to Appellants' arguments about Lipton (i.e., failing to teach "generating a reduced video stream or removing correlative data from one of a pair of video streams"), the Examiner notes D-V is what is cited for such teachings. Ans. 9 (citing D-V col. 4, ll. 1–9). We agree with the Examiner and find Appellants incorrectly focus on Lipton individually instead of addressing the combined teachings of D-V, Lipton, and Weaver to one of ordinary skill in the art. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) ("Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references."); *see also In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (finding the relevant inquiry is whether the claimed subject matter would have been obvious to those of ordinary skill in the art in light of the combined teachings of the references).

Our findings regarding D-V's teachings and suggestions concerning stereoscopic display and multiple video streams also apply to Appellants' same arguments for other elements of claim 17, as well as claim 18.

(2) Compressing as separate video streams

Appellants argue the combination of D-V, Lipton, and Weaver fails to teach or suggest "compressing as separate video streams the reduced video stream and the other of the pair of video streams for use in stereoscopic display," as recited in claim 17. Br. 12–14. Specifically, Appellants argue D-V fails to teach or suggest "using different compression techniques for different video streams," and instead merely teaches that "multiple view images are compressed by reducing redundancy between the pairs of multiple view images." Br. 13–14 (citing D-V col. 4, ll. 7–16).

The Examiner finds, and we agree, this disputed limitation "merely requires that the video streams be compressed separately, and does not include limitations regarding the use of different compressing techniques upon the separately compressed video streams." Ans. 10.

(3) The other of the pair of video streams

Appellants argue the combination of D-V, Lipton, and Weaver fails to teach or suggest "the other of the pair of video streams being usable for two-dimensional or three-dimensional display and the reduced video stream being usable to complement the other of the pair of video streams in three-dimensional display," as recited in claim 17. Br. 14–16. Specifically, Appellants argue Lipton "only generally describes that stereoscopic display is possible." Br. 15 (citing Lipton col. 5, ll. 53–55 ("The inventive system can also produce a two projector stereoscopic display, or two channels of independent non-stereoscopic (planar) displays.")).

The Examiner finds, and we agree, the combination of D-V, Lipton, and Weaver teaches the disputed limitation. Ans. 11; Final Act. 20. As to Lipton, the Examiner finds, and we agree, it teaches or suggests "using

multiple streams that can be used either in combination in a stereoscopic display, or separately as non-stereoscopic displays." Ans. 11; Final Act. 20 (citing Lipton col. 5, ll. 53–55; col. 6, ll. 1–14). As to D-V, the Examiner finds, and we agree, it teaches or suggests "compressing [stereoscopic video] streams via the use of motion estimation for reducing redundancy between the streams, as well as disclosure relating to the three-dimensional geometry of the images." Ans. 11; Final Act. 20 (citing D-V col. 4, ll. 7–16); *see also supra*. We agree with the Examiner's conclusion that the combined teachings of D-V, Lipton, and Weaver teach, or at least suggest, the disputed limitation. *See Keller*, 642 F.2d at 425 (finding the relevant inquiry is whether the claimed subject matter would have been obvious to those of ordinary skill in the art in light of the combined teachings of the references).

(4) Combining D-V and Lipton

Appellants argue the Examiner fails to provide sufficient reasoning to combine D-V and Lipton's teachings, including "because there is no suggestion by either reference to incorporate the alleged benefits of Lipton into the teachings of D[-]V." Br. 16–17. Appellants also argue the Examiner improperly relies on hindsight. Br. 17.

The Examiner finds the teachings of D-V and Lipton are properly combined. *See* Ans. 12–13; Final Act. 9 (providing rationale), 21 (citing to same rationale as for claim 1). The Examiner reasons:

> It would have been obvious, for a person having ordinary skill in the art, to combine the teachings of D[-]V with the teachings of Lipton because the controller systems and methods of Lipton process signals from stereoscopic cameras similar to those shown in Figure 1A of D[-]V, and performs encoding and transformation, and compression on the video streams, similar to the methods of D[-]V. Additionally, the teachings of Lipton

> include display and playback aspects that will benefit the teachings of D[-]V, as they are possible outcomes and uses of the decoded image frames created via the methods of D[-]V.

Final Act. 9; *see also* Ans. 13 (finding "the control systems for use with stereoscopic video systems as taught by Lipton would be relevant, and beneficial to the teachings of D[-]V").

We find Appellants' arguments unpersuasive. The Examiner provides "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). For example, the Examiner reasons a person of ordinary skill in the art would have been motivated to combine D-V and Lipton to achieve the common benefits for signal processing and stereoscopic display. Ans. 13; Final Act. 9, 21; s*ee also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) ("[T]he [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ."). Further, Appellants' argument — which we also find to be conclusory — that the Examiner uses impermissible hindsight largely is premised on a lack of articulated reasoning to combine the references, and thus, we also find this argument unpersuasive.

(5) Using different compression algorithms

Appellants argue the combination of D-V, Lipton, and Weaver fails to teach or suggests "compressing the reduced video stream and the other of the pair of video streams using different compression algorithms," as recited in claim 18. Br. 18–20. Appellants argue the Examiner cited portions of D-V (col. 4, ll. 7–16 and col. 8, ll. 43–57) fail to teach the disputed

limitation. Br. 18–19. Appellants also argue Lipton and Weaver fail to cure the alleged deficiencies in D-V. Br. 19–20.

The Examiner finds, and we agree, the combination, and D-V in particular, teaches or suggests the disputed limitation. Ans. 13–14; Final Act. 11, 21. Specifically, the Examiner finds, and we agree, D-V teaches compressing the reduced video stream and the other of the pair of video streams using different compression algorithms. Final Act. 11 (citing D-V col. 4, ll. 7–16 (teaching or suggesting compressing multiple view images by reducing redundancy between the pairs of images), col. 8, ll. 43–57 (teaching or suggesting "encoder 32 may encode the target image in accordance with a motion compensation prediction approach[,and] . . . also may incorporate non-motion-vector-based image compression methods in the process of encoding the target image, including spectral and spatial redundancy reduction methods")); Ans. 13–14.

Furthermore, Appellants' arguments do not persuasively address why the Examiner's specific findings of what D-V teaches are incorrect, and largely just recite the language of the claim and assert that D-V does not disclose that limitation. *See* 37 C.F.R. § 41.37(c)(1)(iv) ("A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim."); *see also In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (holding that "the Board reasonably interpreted Rule 41.37 to require more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art").

CONCLUSION

Based on our above findings, we sustain the Examiner's § 103 rejection of claims 17 and 18, as well as claims 19 and 20, as Appellants did not provide separate arguments for their patentability. We also summarily affirm the rejections of claims 1–16 and 21–23.

DECISION

We affirm the Examiner's decision rejecting claims 1–23.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED